



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/713,641	11/13/2003	Kevin J. Cummings	EH-11005 (03-539)	1649
34704	7590	12/23/2005		
BACHMAN & LAPOINTE, P.C. 900 CHAPEL STREET SUITE 1201 NEW HAVEN, CT 06510			EXAMINER VERDIER, CHRISTOPHER M	
			ART UNIT	PAPER NUMBER
			3745	

DATE MAILED: 12/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

9/11/05

<b>Office Action Summary</b>	<b>Application No.</b> 10/713,641	<b>Applicant(s)</b> CUMMINGS ET AL.	
	<b>Examiner</b> Christopher Verdier	<b>Art Unit</b> 3745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 09 December 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-26 is/are pending in the application.  
     4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 12-15, 20 and 21 is/are allowed.
- 6) ☒ Claim(s) 1, 5, 6, 9, 17, 19 and 23-26 is/are rejected.
- 7) ☒ Claim(s) 2-4, 7, 8, 10, 16 and 18 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11-13-03, 5-31-05 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on December 9, 2005 has been entered.

Applicants have argued concerning Honda 6,092,987 that the aft and fore joints marked as letters E and F in the annotated figure 2 thereof point to areas where the housing 42 is sealed to an adjacent shroud ring but not secured thereto, and that Honda does not teach or suggest that the aft joint secures the structural case to the structural hub while the fore joint secures the structural case to a joined one of the shroud rings. This argument is respectfully disagreed with, because the aft joint E secures the structural case 28/42 to the structural hub D while the fore joint F secures the structural case 28/42 to a joined one of the shroud rings B. As seen in figure 2 of Honda, the structural case 28/42 is sealed to both the structural hub D and the joined one of the shroud rings B, via unnumbered o-rings located in the structural case 28/42 and the joined one of the shroud rings B (see also figure 3). Because of the inherent frictional contact between the unnumbered o-rings and the structural case 28/42 and the joined one of the shroud rings B, the aft joint E is broadly considered to secure the structural case 28/42 to the structural hub D while the fore joint F is broadly considered to secure the structural case 28/42 to the joined one of the shroud rings B.

Art Unit: 3745

With regard to newly submitted claims 23-26, and Applicants' arguments that the alternative interpretation of Honda '987 identified in the Interview Summary of November 16, 2005 would not constitute a plenum having both a plurality of bleed ports and a plurality of valve ports, because the alternative interpretation would create plural individual passageways not connected to each other and thereby not forming a plenum, these arguments are disagreed with for the reasons set forth in the rejections set forth later below. Applicants' argument that claim 25, which identifies the bleed plenum as a common annular bleed plenum, is not disclosed by Honda '987, because the plural individual passageways/conduits would not constitute a plenum nor a common annular bleed plenum, is disagreed with for the reasons set forth in the rejections set forth later below. Regarding Applicants' argument that new claim 26 identifies bleed offtake ducts and that there is no suggestion for the bleed offtake ducts having the claimed relationship to the bleed plenum, the combination of Chlus 6,802,691 and Honda '987 teaches this feature.

Applicants' arguments with regard to the rejection of claims 1, 5-6, 9, 17, and 19 under 35 U.S.C. 103(a) as being unpatentable over Chlus 6,802,691 in view of Honda 6,092,987 are the same as set forth above with regard to Honda '987. These arguments are not persuasive, because in the annotated figure 2 of Chlus, the aft joint E (which is shown as a bolt extending to and connected to the structural hub 70) secures the structural case 20 to the structural hub 70 while the fore joint F secures the structural case 20 to a joined one of the shroud rings B (by virtue of the provision of the bolt and the abutting contact between the structural case 20 and the joined one of the shroud rings B). Applicant's argument that in Chlus, there is no suggestion for the

Art Unit: 3745

claimed bleed plenum, is not persuasive for the reasons set forth in the rejections set forth later below.

With regard to Malmberg 2005/0008486, Applicant has argued that it is not clear whether the citation of Malmberg for teaching a compressor with a structural case 76 that carries fan exit guide vanes 77 is intended to replace the structural case of Honda as it is differently positioned. This argument is not persuasive, because the previous Office action clearly indicates that Malmberg is relied upon to teach a structural hub that carries plural fan exit guide vanes, for the purpose of guiding working fluid from the compressor. The previous Office action does not include any statement that the structural case of Honda or Chlus is replaced. With regard to Applicants' argument that it is clear from figure 2 of Malmberg that the element having the valve ports above reference numeral 84 is in floating relation to the shroud sealed by O-rings as is Honda, and that Malmberg does not suggest the claimed bleed plenum, these arguments are not persuasive, because Malmberg is not relied upon to teach these features, but is relied upon to teach a structural case 76 that carries fan exit guide vanes 77, for the purpose of guiding working fluid from the compressor.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 5-6, 9, 17, 19, and 23-25 are rejected under 35 U.S.C. 102(b) as being anticipated by Honda 6,092,987. Honda (please refer to the enlargement of figure 2 at the end of this action) discloses a gas turbine engine comprising a fan 22, a compressor 24 along a core flow path 18 and having a plurality of rows of unnumbered blades in figure 2, a plurality of rows of unnumbered vanes in figure 2, and a plurality of shroud rings A, B, a bleed one B of which defines a plurality of bleed ports C to an annular bleed plenum which may be considered as 32 (see also column 4, lines 15-17), and/or which annular bleed plenum may alternatively be considered as the annular area radially inside of element 28, adjacent to passages 30, a structural hub D downstream of the shroud rings and secured relative to the shroud rings (Note that the structural hub D is inherently secured to some portion of the engine, because high pressure working fluid passes through the core flow path and structural case 28 rests on and moves about the structural hub, therefore the structural hub D must be secured to some portion of the engine to prevent downstream movement of the structural hub. Note also that the phrase “secured relative to the shroud rings” does not require that the structural hub D is secured to the shroud rings, but only that it is secured relative to the shroud rings.), a structural case 40/42 extending from an aft joint E securing the structural case to the structural hub D to a fore joint F securing the structural case to a joined one of the shroud rings B and having a plurality of valve ports 30 from the bleed plenum, at least a portion of the structural case extending structurally between the fore and aft joints, and a valve element 62 shiftable between a first condition in which the valve element blocks communication through the valve ports, and a second condition in which the valve element does not block the communication. The valve element is shiftable via combined

Art Unit: 3745

circumferential rotation and longitudinal translation. The valve element carries an outboard aft seal 72 and an inboard fore seal 74 for sealing with the structural case in the first condition. At least a portion of the structural case (the inner circumferential rail shown in figure 4b) extends as a continuous piece between the fore and aft joints. As seen in figure 2 of Honda, the structural case 28/42 is sealed to both the structural hub D and the joined one of the shroud rings B, via unnumbered o-rings located in the structural case 28/42 and the joined one of the shroud rings B (see also figure 3). Because of the inherent frictional contact between the unnumbered o-rings and the structural case 28/42 and the joined one of the shroud rings B, the aft joint E is broadly considered to secure the structural case 28/42 to the structural hub D while the fore joint F is broadly considered to secure the structural case 28/42 to the joined one of the shroud rings B. Concerning claims 23-24, bleed shroud ring B defines plural bleed ports C that extend into the unnumbered bleed plenum which is the annular area radially inside of element 28, adjacent to passages 30, and plural valve ports 30 extend from the bleed plenum to an outboard plenum 32. Concerning claim 24, the plural valve ports 30 extend from the unnumbered bleed plenum which is the annular area radially inside of element 28, adjacent to passages 30, downstream of the bleed ports along an unnumbered bleed flowpath, downstream of the bleed ports. Concerning claim 25, the bleed plenum is a common annular bleed plenum.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

Art Unit: 3745

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 5-6, 9, 17, 19, and 23-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chlus 6,802,691 in view of Honda 6,092,987. Chlus (please refer to the enlargement of figure 2 at the end of this action) discloses a gas turbine engine comprising a fan 12, a compressor 14 along a core flow path 16 and having a plurality of rows of unnumbered blades in figure 1, a plurality of rows of unnumbered vanes in figure 1, and a plurality of shroud rings A, B, a bleed one B of which defines a bleed port C to an unnumbered annular bleed plenum which may be considered as the area radially outward of reference numeral 56, and/or which annular bleed plenum may alternatively be considered as the annular area radially inside of element 20, adjacent to element 20, a structural hub 70 downstream of the shroud rings and secured relative to the shroud rings (Note that the structural hub 70 is inherently secured to some portion of the engine, because high pressure working fluid passes through the core flow path and the structural case shown generally at 20 rests on and moves about the structural hub, therefore the structural hub 70 must be secured to some portion of the engine to prevent downstream



Art Unit: 3745

movement of the structural hub. Note also that the phrase “secured relative to the shroud rings” does not require that the structural hub 70 is secured to the shroud rings, but only that it is secured relative to the shroud rings.), a structural case shown generally at 20 extending from an aft joint E securing the structural case to the structural hub 70 via an unnumbered bolt to a fore joint F securing the structural case to a joined one of the shroud rings B (by virtue of the provision of the bolt and the abutting contact between the structural case 20 and the joined one of the shroud rings B) and having a valve port 20 from the bleed plenum, at least a portion of the structural case extending structurally between the fore and aft joints, and a valve element 24 shiftable between a first condition in which the valve element blocks communication through the valve port, and a second condition in which the valve element does not block the communication. The valve element is shiftable via combined circumferential rotation and longitudinal translation (note that the term “is shiftable” is a recitation of intended use. A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 370 F.2d 576, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 312 F.2d 937, 939, 136 USPQ 458, 459 (CCPA 1963)). The valve element carries an outboard aft seal 44 and an inboard fore seal 48 for sealing with the structural case in the first condition. At least a portion of the structural case (the rear portion) extends as a continuous piece between the fore and aft joints. Concerning claims 23-24, bleed shroud ring B defines a bleed port C that extends into the unnumbered bleed plenum which is the

Art Unit: 3745

annular area radially inside of element 20, and valve port 20 extends from the bleed plenum to an unnumbered outboard plenum. Concerning claim 24, the valve port 20 extends from the unnumbered bleed plenum which is the annular area radially inside of element 20, downstream of the bleed port along an unnumbered bleed flowpath, downstream of the bleed port.

Concerning claim 25, the bleed plenum is a common annular bleed plenum. Concerning claim 26, an unnumbered bleed offtake duct extends outboard from the bleed port C into the bleed plenum, the bleed plenum being a common annular bleed plenum.

However, Chlus does not disclose that the bleed port C is plural bleed ports, does not disclose that the valve port 20 is plural valve ports, and does not disclose that the bleed offtake duct is plural bleed offtake ducts.

Honda (figure 2) shows a gas turbine engine bleed valve system, whereby plural bleed ports C are provided, and plural valve ports 30 are provided, for the purpose of allowing working fluid to be bypassed from the compressor flow path through multiple ports.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to form the gas turbine engine of Chlus such that the bleed port C is plural bleed ports, and such that the valve port 20 is plural valve ports, which would also result in there being plural bleed offtake ducts, as taught by Honda, for the purpose of allowing working fluid to be bypassed from the compressor flow path through multiple ports.

Art Unit: 3745

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Honda 6,092,987 in view of Malmborg 2005/0008486. Honda discloses a gas turbine engine substantially as claimed as set forth above, including a structural hub D, but does not disclose that the structural hub carries plural fan exit guide vanes.

Malmborg shows a gas turbine engine having a compressor with a structural case 76 that carries fan exit guide vanes 77, for the purpose of guiding working fluid from the compressor.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to form the gas turbine engine of Honda such that the structural hub carries plural fan exit guide vanes, as taught by Malmborg, for the purpose of guiding working fluid from the compressor.

Claim 11 is also rejected under 35 U.S.C. 103(a) as being unpatentable over Chlus 6,802,691 and Honda 6,092,987 as applied to claim 9 above, and further in view of Malmborg 2005/0008486. The modified gas turbine engine of Chlus shows all of the claimed subject matter except for the structural hub 70 carrying plural fan exit guide vanes.

Malmborg shows a gas turbine engine having a compressor with a structural case 76 that carries fan exit guide vanes 77, for the purpose of guiding working fluid from the compressor.

Art Unit: 3745

It would have been further obvious at the time the invention was made to a person having ordinary skill in the art to form the modified gas turbine engine of Chlus such that the structural hub carries plural fan exit guide vanes, as taught by Malmborg, for the purpose of guiding working fluid from the compressor.

*Allowable Subject Matter*

Claims 12-15 and 20-21 are allowed.

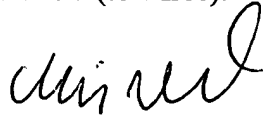
Claims 2-4, 7-8, 10, 16, and 18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher Verdier whose telephone number is (571) 272-4824. The examiner can normally be reached on Monday-Friday from 10:00-6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward K. Look can be reached on (571) 272-4820. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

C.V.  
December 21, 2005

  
Christopher Verdier  
Primary Examiner  
Art Unit 3745